

TRH 15-4-01

TRH 15-5-01

Highway Division

TRIPLE REINFORCED CONCRETE BOX CULVERT STANDARDS

TYPICAL VIEW - FRONT AND BACK FACE REINFORCING.

BILL OF REINFORCING FOR ONE HEADWALL 15°

WINGWALLS, CENTER WALL

BENT BAR DETAILS AND

SKEW, 10'-0 AND 12'-0 SPANS

GENERAL NOTES:

 THE RCB CULVERT SECTIONS ARE DESIGNED FOR HS20-44 LIVE LOAD AND EARTH FILLS OF VARYING HEIGHTS.

 THE MAXIMUM SERVICE LOAD STRESS (ksi) IN THE REINFORCING STEEL FOR CRACK CONTROL SHALL BE:

fsg = 170 / \$\forall dcA dc AND A ARE IN INCHES AND INCHES 2 RESPECTIVELY

 METAL BAR CHAIRS SPACED AT NOT OVER 3'-0 C-C IN EITHER DIRECTION ARE TO BE USED TO SUPPORT ALL SLAB AND FLOOR STEEL AS OUTLINED IN THE STANDARD SPECIFICATIONS (ARTICLE 2404.07).

4. THE CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR EDGE OR END OF REINFORCING BAR TO BE 2" UNLESS OTHERWISE NOTED.

5. LONGITUDINAL REINFORCING IS NOT TO EXTEND THRU THE CONSTRUCTION JOINTS, EXCEPT FOR 5-1 DOWEL BARS IN SLAB.
6. ALL REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE BEFORE

 ALL HEINFORCING SIEEL IS TO BE SECURELY WIRED IN PLACE BEFORE THE CONCRETE IS POURED (ARTICLE 2404.06).
 FLOOR OF BARREL IS TO BE FINISHED SMOOTH, SIDES OF FOOTING ARE

TO BE FORMED TO INSURE CORRECT LINE AND GRADE.

8. ALL EXPOSED CORNERS 90° OR SHARPER TO BE FILLETED WITH A 3°

DRESSED AND BEVELED STRIP.

9. THE PERMISSIBLE CONSTRUCTION JOINT AT THE TOP OF THE WALLS MAY BE LOWERED AT THE CONTRACTOR'S OPTION WITH ENGINEERS APPROVAL.

10. THE REINFORCEMENT SUPPLIED FOR THIS STRUCTURE SHALL BE GRADE 60 REINFORCEMENT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE DESIGN STRESSES ARE BASED ON 60 GRADE REINFORCEMENT.

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II. THE VERTICAL BARS IN THE WALLS MAY BE SPLICED ABOVE THE FOOTING AT THE CONTRACTOR'S OPTION AS FOLLOWS:

BAR SIZE NUMBER 4 5 6 7 8
MINIMUM SPLICE LENGTH 21" 26" 31" 43" 55"
THIS SPLICE, IF USED WILL BE AT THE CONTRACTOR'S EXPENSE.

12. REINFORCING BAR CLEARANCES WILL BE AS FOLLOWS: EDGE CLEARANCES: 2° EXCEPT

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TOP OF FLOOR 24" TO NEAR TRANSV.REINF.BAR
BOTTOM OF FLOOR 32" TO NEAR TRANSV.REINF.BAR
END CLEARANCES:

VERTICAL TOP 2"
VERTICAL BOTTOM 3" OR 32" IF OVERALL HEIGHT OF THE CULVERT IN NOT TO A FULL INCH

TRANSVERSE 2"

13. ALL CONSTRUCTION JOINTS SHALL BE FORMED WITH A BEVELED KEYWAY EXCEPT AT BEIL JOINTS.

ALL BEVELED KEYWAYS SHALL BE CENTERED.

KEYWAY SIZE SHALL BE 2 \times 4 EXCEPT A5 FOLLOWS: KEYWAY BETWEEN THE FLOOR AND WALL SHALL BE 2 \times 6 WHEN THE WALL IS GREATER THAN 10' WIDE.

14. IF O FT. OF FILL IS SPECIFIED, DETAILS FOR PAVING NOTCH AND REFERENCE TO EPOXY COATING OF SLAB REINFORCING STEEL, IF APPLICABLE,

SHALL BE INCLUDED IN THE FINAL PLANS.

15. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED OR SHOWN.

SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 1992, EXCEPT AS MODIFIED IN GENERAL NOTES 2 ABOVE.

CONTRUCTION: STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION SPECIFICATION, CURRENT SERIES, PLUS CURRENT

SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE ASSHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1992. RENFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60. CONCRETE IN ACCORDANCE WITH SECTION 8, f°c = 3,500 PSI.

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ATEST REVISION DATE :

STANDARD DESIGN
GENERAL INFORMATION

TRIPLE REINFORCED CONCRETE BOX CULVERTS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

SEPT., 2001

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